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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/583,421

06/19/2006

Loes Elizabeth Bevers

F7752(V)

1710

201 7590 06/23/2009
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EXAMINER

HANRAHAN, JOSEPH M.J.

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

06/23/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/583,421	Applicant(s) BEVERS ET AL.	
	Examiner JOSEPH M.J. HANRAHAN	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 11-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/8/06</u> . | 6) <input type="checkbox"/> Other: ____. |

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DETAILED ACTION***Election/Restrictions***

Applicant's election with traverse of claims 1-10 in the reply filed on June 3rd, 2009 is acknowledged. The traversal is on the ground(s) that the claims as amended are now in line with the claims recited in the international application and issued European Patent. This is not found persuasive because the inventions listed as Groups 1, 2, and 3 do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The inventions share a common technical feature of edible barriers comprised of cross-linked bi-polymer and an edible oil, fat, or wax. However, edible barriers comprised of cross-linked bi-polymer and an edible oil, fat, or wax are known in the art (Konno EP Pub. No. 0328317 A1). Therefore the claims do not provide a contribution over the prior art and lack of unity exists.

The requirement is still deemed proper and is therefore made FINAL.

1. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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3. Claims 9 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Regarding claims 9 and 10, the phrase "e.g." renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

5. Claim 9 recites the limitation "the compound." There is insufficient antecedent basis for this limitation in the claim. This term has been interpreted to mean cross-linked bi-polymer.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. **Claims 1, 2, and 5-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Konno (EP Pub. No. 0328317 A1).**

8. Regarding Claims 1 and 5-7, Konno teaches an edible barrier comprising pectin which, when gelled, is a cross linked biopolymer and fat (Pg. 2, Lines 3, 59 and 52; Pg. 3, Line 45). Konno further teaches that the edible films with an incorporated foodstuff such as fats or oils will have a thickness of 10 to 200 microns (Pg. 3, Lines 45, 52). Furthermore, Konno gives an example of an edible barrier with sodium glutamate incorporated therein that has a thickness of about 200 microns (Pg. 4, Example 4)

9. Regarding Claim 2, pectin is a hydrocolloid.

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Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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13. **Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konno as applied to Claim 1, above, and further in view of Fitchett (US PG Pub. 2002/0028197).**

14. Regarding Claims 3 and 4, Konno does not teach a hydrocolloid based biopolymer containing ortho-methoxy-phenolic or ferulic acid groups. Fitchett, however, teaches an edible pectin gel that is suitable for use as a coating or a glaze (¶¶ 11, 75). The examiner equates a coating or glaze with a barrier or film since a coating of a pectin gel would at least partially inhibit a number of possible entities from crossing through it and glazing is equivalent to forming a film. Fitchett further teaches that the pectin gel contains ferulic acid groups (which intrinsically contain ortho-methoxy-phenolic groups) (¶¶ 11,12). As stated, Konno teaches a gelled film containing pectin. The particular type or source of pectin is not specified. To select a known pectin for use in the edible film of Konno would have been an obvious choice to a person of ordinary skill in the art at the time of invention. Since the pectin containing ferulic acid groups of Fitchett was known, the person of ordinary skill in the art would have been motivated to use it since it is shown by Fitchett to be useful as an edible coating. Furthermore, the pectin product of Fitchett would readily work with the method of Konno since Konno teaches adding the pectin to water (Pg.2, 57-59) and Fitchett teaches that gelation can be induced by addition of water (¶ 57).

15. **Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Konno in view of Seaborne (US Pat. No. 4661359).**

16. Konno teaches an edible barrier comprising cellulose derivatives such as methyl cellulose which, when gelled, is a cross linked biopolymer and fat (Pg. 2, Lines 3, 49, 50 and 59; Pg. 3, Line 45). Konno further teaches that the edible films with an incorporated foodstuff such as fats or oils

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will have a thickness of 10 to 200 microns (Pg. 3, Lines 45, 52). Konno does not teach that the cross linked biopolymer is hydrophobically modified.

17. Seaborne teaches a edible film comprising a hydroxypropyl cellulose biopolymer (Seaborne Col. 6, Line 20) which is a cellulose derivative that is hydrophobically modified with stearic acid (a fatty acid) (Col. 7, Line 30; Col. 8, Line 1). It would have been obvious to a person of ordinary skill in the art at the time of invention to have used stearic acid with the cellulose derivative of Konno since the stearic acid would have increased the moisture impermeability of the film (Seaborne Col. 7, 32-33).

18. **Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Konno in view of Fitchett, and further in view of Seaborne and still further in view of Tharanathan, R.N. (Biodegradable films and composite coatings: past present and future., Trends in Food Science and Technology 14 (2003) 71-78).**

19. While not specifically disclosed, Fitchett does contemplate a vanillin coupled polymer. Fitchett teaches that the terms “ferulic acid” and “ferulate” encompass ferulyl and derivatives thereof (¶ 17). Vanillin is a derivative of ferulic acid and so its use is contemplated by Fitchett. It therefore would have been obvious to a person of ordinary skill in the art use a vanillin-coupled polymer in the claimed invention. However, Konno in view of Fitchett does not teach that the biopolymer contains fatty acid chains.

20. Seaborne teaches an edible film comprising a hydroxypropyl cellulose biopolymer (Seaborne Col. 6, Line 20) which is a cellulose derivative that is hydrophobically modified with stearic acid (a fatty acid) (Col. 7, Line 30; Col. 8, Line 1). The stearic acid is used to increase the moisture impermeability of the film (Seaborne Col. 7, 32-33).

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21. Tharanathan teaches that composite films can be made with free fatty acids, cellulose, pectins, etc. (Fig.1; Pg. 73, last paragraph). Tharanathan further teaches that these elements are compatible amongst themselves (Pg. 73, Col. 2, Line 1).

22. Given the teachings of Tharanathan that the elements of Fig.1 (Tharanathan Pg. 73) are compatible amongst themselves, it would have been obvious to the person of ordinary skill in the art at the time of invention to have employed the use of a fatty acid as taught by Seaborne in the pectin film as taught by Konno and Fitchett to achieve a greater degree of moisture impermeability.

23. **Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Konno as applied to claim 1 above, and further in view of Beyer (US PG Pub. No. 2002/0004089 A1).**

24. Konno does not teach a crosslinked biopolymer that is crosslinked to a protein or a vanillin coupled protein. Beyer, however, teaches a pectin biopolymer that is crosslinked with casein which is a protein (¶ 22). As stated above, Konno teaches a gelled film containing pectin. Konno also teaches that the film may additionally include casein (Pg.2, Line 48). The particular type or sources of pectin nor casein are not specified. Given that Konno contemplates the use of both pectin and casein in forming an edible film it would have been an obvious choice to a person of ordinary skill in the art at the time of invention to select the film forming combination of pectin and casein taught in Beyer. Since the pectin and casein film forming substance of Beyer was known, the person of ordinary skill in the art would have been motivated to use it since it is shown by Beyer to be useful as an edible film. Furthermore, the pectin product of Beyer would readily work with the method of Konno since Konno teaches adding the pectin and casein to water and subsequently heating (Pg.2, 57-59) and Beyer teaches that the film is formed by adding water and heating (¶ 35).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSEPH M.J. HANRAHAN whose telephone number is (571) 270-7060.

The examiner can normally be reached on M-F from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JOSEPH M.J. HANRAHAN/
Examiner, Art Unit 1794

/JENNIFER MCNEIL/

Supervisory Patent Examiner, Art Unit 1794